

**CLAIMS**

1. A bus system comprising a controller (1); a high speed data transfer bus (2), the data transfer bus being subject to one or more inherent physical-layer configuration constraints for proper electrical operation; and a separate control bus (14), said control bus and said data transfer bus connecting the controller and the, or each, device (3, 4, 5, 6) connected thereto, wherein the controller is arranged to communicate with devices using the control bus in order to verify whether or not one or more of the physical-layer configuration constraints are satisfied and, if such configuration constraints are not satisfied, to modify using control signals transmitted on the control bus the operation of at least some of the devices in order to bring the data transfer bus to an operable condition.
2. The bus system of claim 1 wherein, if said configuration constraints are not satisfied, the controller is arranged to disable at least some of the devices using control signals transmitted on the control bus in order to bring the data transfer bus to an operable condition.
3. The bus system of claim 2 wherein the controller is arranged to disable devices furthest from the controller on the data transfer bus.
4. The process of claim 2 or 3, wherein the controller is arranged to disable all devices connected to the bus, except one to five devices.
5. The bus system of one of claims 1 to 4, wherein, if said configuration constraints are not satisfied, the controller is arranged to set a stored indicator indicative of a error condition.
- 30 6. The bus system of one of claims 1 to 5, wherein said physical-layer constraints comprise a constraint on the number of devices connected to the bus.

7. In a bus system comprising a controller (1); a high speed data transfer bus (2), the data transfer bus being subject to one or more inherent physical-layer configuration constraints for proper electrical operation; and a separate control bus (14), said control bus and said data transfer bus connecting the controller and the, or each, device (3, 4, 5, 6) connected thereto, a process for bringing the data transfer bus to an operable condition, comprising the steps of
- communicating with devices using the control bus in order to
- 10 verify whether or not one or more of the physical-layer configuration constraints are satisfied and,
- if such configuration constraints are not satisfied, to modifying the operation of at least some of the devices using control signals transmitted on the control bus.
- 15 8. The process of claim 7 wherein said step of modifying comprises disabling at least some of the devices using control signals transmitted on the control bus.
9. The process of claim 8 wherein said step of modifying comprises disabling devices furthest from the controller on the data transfer
- 20 bus.
10. The process of claim 8 or 9 wherein said step of modifying comprises disabling all devices connected to the bus, except one to five devices.
11. The process of one of claims 7 to 10 further comprising, if
- 25 said configuration constraints are not satisfied, setting a stored indicator indicative of a error condition.
12. The process of one of claims 7 to 11, wherein said physical-layer constraints comprise a constraint on the number of devices connected to the bus.
- 30 13. A computer comprising a bus according to one of claims 1 to 6.

14. A computer program product for a computer with a bus system comprising a controller (1); a high speed data transfer bus (2), the data transfer bus being subject to one or more inherent physical-layer configuration constraints for proper electrical operation; and

5 a separate control bus (14), said control bus and said data transfer bus connecting the controller and the, or each, device (3, 4, 5, 6) connected thereto,

said computer program product comprising a computer readable medium having thereon :

10 - computer program code means, when said program is loaded, to make the controller communicate with devices using the control bus in order to verify whether or not one or more of the physical-layer configuration constraints are satisfied and,  
- if such configuration constraints are not satisfied, to make the  
15 controller modify the operation of at least some of the devices using control signals transmitted on the control bus.

15. The computer program product of claim 14 wherein, if such configuration constraints are not satisfied, the computer program code means make the controller disable at least some of the devices  
20 using control signals transmitted on the control bus.

16. The computer program product of claim 15 wherein, if such configuration constraints are not satisfied, the computer program code means make the controller disable devices furthest from the controller on the data transfer bus.

25 17.. The computer program product of claim 15 or 16 wherein, if such configuration constraints are not satisfied, the computer program code means make the controller disable all devices connected to the bus, except one to five devices.

18. The computer program product of one of claims 14 to 17 wherein,  
30 if such configuration constraints are not satisfied, the computer program code means set a stored indicator indicative of a error condition.

19. The computer program product of one of claims 14 to 18 wherein said physical-layer constraints comprise a constraint on the number of devices connected to the bus.